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Connecting the Circular Economy and Sustainability: Finnish Stakeholder Perceptions

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Introduction

A circular economy denotes a systemic transition from a linear economy towards a circular economy. It has been presented as a solution to pressing sustainability challenges such as resource scarcity and depletion and climate change (Ellen McArthur Foundation, 2020; Korhonen et al., 2018a). Globally, the promotion of the circular economy and sustainable development are high on political agendas (Geissdoerfer et al., 2017; Pieroni et al., 2019). For example, the United Nations has introduced 17 sustainable development goals which serve as a blueprint for future direction (United Nations, 2020). At the European level, the European Union (EU) has committed to fostering sustainability through its internal and external policies (European Commission, 2019).

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However, the constructs of a circular economy and sustainability, as well as their connection to each other, remain vague in theory and practice. While several literature reviews have been conducted related to the circular economy (Merli et al., 2018; Prieto-Sandoval et al., 2018; Winans et al., 2017), researchers have not reached a mutual understanding of how the circular economy as a concept should be defined and how it is linked to sustainability (Geissdoerfer et al., 2017; Pieroni et al., 2019; Reike et al., 2018). Regarding the connection to sustainability, a main critique has been that environmental and economic aspects have been dominant in discussions on the circular economy, while less attention has been given to the social dimension (Mies & Gold, 2021; Murray et al., 2017; Schröder et al., 2019). Furthermore, one of the paradoxes of sustainability is that despite the increasing attention to sustainability in business, deprivation of the natural environment has not decreased (Dyllick & Muff, 2016; Landrum, 2018). Thus, it has been argued that sustainability requires systemic change at all levels of society instead of incremental improvements to the current economic model (Kirchherr et al., 2017; Velenturf & Purnell, 2021).

Circular economy research focuses on change agents and, in particular, on stakeholders and stakeholder engagement in accelerating systemic change (Centobelli et al., 2020; Gonzalez-Porrás et al., 2021). Indeed, the transition from a linear towards a circular economy requires close collaboration between various stakeholders (Gupta et al., 2019; Marjamaa et al., 2021; Pieroni et al., 2019; Tapaninaho & Heikkinen, 2022). However, there is limited empirical knowledge on how stakeholder groups at different levels of society understand and perceive the circular economy and its connection to sustainability (Geissdoerfer et al., 2017). This is surprising, since studies have stressed the vital role of stakeholders, such as public sector actors and civil society organisations, in promoting the circular economy (Centobelli et al., 2020).

The purpose of this study is to examine how the connection between the circular economy and sustainability is understood among key stakeholder groups promoting a circular economy. Stakeholders are defined here as those who influence or can be influenced by a circular economy (Freeman, 1984; Kujala et al., 2019; Roloff, 2008). Empirically, we study stakeholder perceptions of a circular economy and sustainability

in Finland. Finland provides a particularly interesting context to examine the circular economy and sustainability, as the Finnish government has set an ambitious goal of achieving a socially, ecologically, and economically sustainable society and being a forerunner in the circular economy by 2025 (Prime Minister's Office, 2019).

The contribution of this study is threefold. First, it explores how different stakeholders perceive the circular economy. To date, few studies have empirically investigated perceptions regarding the circular economy among multiple stakeholder groups (Kunz et al., 2018). Second, in line with recent sustainability studies (Geissdoerfer et al., 2017; Merli et al., 2018; Pieroni et al., 2019; Velenturf & Purnell, 2021), we focus on how the understanding of sustainability varies among different stakeholders. Thus, our study provides empirical evidence of how different stakeholders perceive the connection between the circular economy and sustainability. Third, as a result of our empirical findings, we provide a novel categorisation of circular economy approaches.

The rest of the paper is organised as follows. First, theoretical underpinnings and conceptualisations of the circular economy and sustainability as well as their linkages are discussed. This is followed by the methods section, in which the data collection and analysis are described in detail. Afterwards, the findings are presented. Finally, the discussion is followed by practical implications, limitations, and future research directions.

The Circular Economy and Sustainability

Research on the Circular Economy

As a research topic, the circular economy is multidisciplinary by nature. It has been studied in many fields, e.g. in industrial economy, and environmental and ecological ecology (Korhonen et al., 2018b; Merli et al., 2018; Murray et al., 2017). In recent years, the business potential of the circular economy has been recognised, and interest has also grown in the field of management and business studies (Centobelli et al., 2020),

where, for instance, new business models have been examined and developed in accordance with circular economy principles (Ranta et al., 2018; Tapaninaho & Heikkinen, 2022).

The historical roots and the origin of the circular economy concept are debatable (Murray et al., 2017; Winans et al., 2017). For example, Blomsma and Brennan (2017) examined antecedents of the circular economy discussion tracing back to 1960. Boulding's (1966) idea of the closed system has often been mentioned as a starting point for the circular economy (Geissdoerfer et al., 2017; Merli et al., 2018). During the period between 1960 and the early 1980s, attention was paid mainly to the handling of waste and its polluting effects. After this period, waste came to be comprehended more broadly, and its business potential was recognised (Blomsma & Brennan, 2017). The period from 2013 to the present has been described as a "validity challenge period", because clarity regarding the circular economy concept has started to emerge (Blomsma & Brennan, 2017, p. 610).

In this study, we understand the circular economy as an opposite of a linear economy (Geissdoerfer et al., 2017). In the literature, the linear economy has been described with terms such as "make-use-dispose systems" (Geissdoerfer et al., 2017, p. 764) and an "open cowboy-economy" (Blomsma & Brennan, 2017, p. 608). In the linear economy, waste is the final endpoint of products, which are produced using natural resources. Contrary to the linear economy, the circular economy aims at closed loops without waste. There are many circularities in nature, and the premise of the circular economy is that we can imitate these natural circularities in the economy (Murray et al., 2017). The term "circular" implies that little to no waste is produced (Velenturf & Purnell, 2021).

The "three Rs" (Reduce, Reuse, and Recycle) are often used to describe the main principles of the circular economy (Murray et al., 2017; Ranta et al., 2018). Reducing refers to a reduction in the use of materials as well as in consumption, but also to increased efficiency in production. Reusing concerns the reuse of discarded products or components. Recycling, on the other hand, refers to processes in which waste is transformed into raw materials which can be further used. Reike et al. (2018) introduced a more nuanced hierarchy of resource value retention options

with a 10R typology ranging from the principle of “refusing” (R0) to “remining” (R9).

Recently, criticisms have been directed towards the circular economy construct. For example, Korhonen et al. (2018b) have pointed out that the circular economy is mainly focused on technical and practical issues, while social and abstract issues such as values and worldviews have been ignored. The extent to which the circular economy can promote global sustainability is also debatable (Schröder et al., 2019), although it has been presented as a driver for sustainable development (Manninen et al., 2018; Murray et al., 2017). It has also been pointed out that different stakeholders involved in the circular economy, such as companies and policymakers, may understand it and its linkage to sustainability differently (Geissdoerfer et al., 2017).

Connection to Sustainability

Scholars have attempted to explicate the connection between a circular economy and sustainability (Kirchherr et al., 2017). One definition connecting these concepts is provided by Korhonen et al. (2018b, p. 547), who defined the circular economy as “a sustainable development initiative with the objective of reducing the societal production-consumption systems’ linear material and energy throughput flows by applying materials cycles, renewable and cascade-type energy flows to the linear system”. Similarly, Prieto-Sandoval et al. (2018, p. 610) defined the circular economy as an “economic system that represents a change of paradigm in the way that human society is interrelated with nature and aims to prevent the depletion of resources, close energy and material loops, and facilitate sustainable development”. Moreover, Velenturf and Purnell (2021, p. 1437) stressed that the circular economy should contribute “to sustainability from the whole system perspective of optimising social, environmental, technical and economic values of materials and products in society”. In addition to making a connection between the circular economy and sustainability, these definitions also highlight the importance of broad, systemic and multi-level economic and societal changes intended to promote sustainable development.

Some circular economy studies have evaluated the connections of the circular economy to sustainable development by examining whether and how three dimensions of sustainability (economic, ecological, and social sustainability) are acknowledged in the circular economy (Murray et al., 2017). From the economic sustainability perspective, the circular economy is seen as providing diverse value-creation mechanisms (Manninen et al., 2018). In other words, the circular economy is presented as enabling economic growth and creating jobs through new business models (Ellen MacArthur Foundation, 2020). For example, the European Commission has estimated that the circular economy can generate a net economic benefit of 1.8 trillion euros and create over one million new jobs in the EU by 2030 (European Commission, 2019). However, emphasis on the economic outcomes of the circular economy has also received criticism. For example, the term “circular economy rebound” has been used to describe the unintended effects of the circular economy, such as failing to replace primary production with secondary production (Zink & Geyer, 2017).

Regarding the ecological dimension of sustainability, the circular economy aims to reduce virgin material and energy inputs as well as limit waste and emissions outputs (Korhonen et al., 2018a, p. 41). The objective of the circular economy is to reduce negative environmental impacts to respect planetary boundaries (Velenturf & Purnell, 2021). Furthermore, the aim of the circular economy is not only to safeguard resources, but also to repair the damage that has already been caused (Murray et al., 2017).

Few circular economy scholars have paid attention to social sustainability objectives, such as increased employment, participative and democratic decision-making, and co-operative cultures (Korhonen et al., 2018a, p. 41). Merli et al. (2018) concluded that while the economic and ecological dimensions of sustainability are closely related to the circular economy, the link between the circular economy and social sustainability has received marginal attention. Thus, it is still unclear how the circular economy can promote, for example, equity and justice in society (Murray et al., 2017; Schröder et al., 2019). However, in the broadest sense, social sustainability can be understood as covering current generations’ welfare objectives in the national context along with international and

intergenerational aspects (Murphy, 2012). The intergenerational perspective is a defining principle of sustainable development; for example, the influential Brundtland Report (1987) definition emphasises sustainable development as actions aiming to promote the needs of current generations without compromising the needs of future generations. However, the time dimension is largely missing in most discussions on the circular economy, and not enough attention has been paid to intergenerational equity (Geissdoerfer et al., 2017; Millar et al., 2019). Thus, a holistic view of sustainability in the circular economy context is called for (Pieroni et al., 2019).

Finally, approaches to the circular economy may vary, from a business-centric approach (Ranta et al., 2018) to a broad approach emphasising the circular economy as a force for social and economic change (Mies & Gold, 2021). Likewise, along the sustainability spectrum, views can vary from weak to strong (Landrum, 2018; Roome, 2012). Weak sustainability refers to a situation where the aim is to maintain the status quo concerning, for example, the economic model and consumption patterns. Whereas, in strong sustainability, the preservation of natural resources and planetary limits define the boundaries for human actions (Landrum, 2018; Loiseau et al., 2016). In other words, strong sustainability is related to radical economic reorganisation aiming at a reduction in material use and degrowth, while a weak sustainability perspective does not contest the current neoliberal economic model (Schröder et al., 2019). In addition, the dimensions of economic, ecological, and social sustainability may vary and influence the degree and comprehension of a sustainable circular economy (Landrum, 2018).

We argue that to understand the connection between the circular economy and sustainability, we need to analyse key stakeholder groups promoting the circular economy as well as their approach to the circular economy and their understanding of sustainability. Analysing stakeholder views is important since different stakeholders can act as change agents for accelerating the transition towards the circular economy (Geissdoerfer et al., 2017; Lieder & Rashid, 2016). In addition to individual stakeholder actions, stakeholder engagement, that is, the aims, activities, and impacts of stakeholder relations (Kujala et al., 2022), can also have change agency in the transition towards a circular economy

(Gonzalez-Porras et al., 2021). For example, a recent study showed that stakeholders can simultaneously pursue their own interests related to the circular economy and share a joint interest in promoting a sustainable circular economy (Marjamaa et al., 2021).

Methods

Data Generation

A purposive sampling method was used for data collection (Elo et al., 2014). The data collection process started by identifying key stakeholders promoting the circular economy in Finland based on discussions with circular economy experts. A similar sampling method was used in a study regarding stakeholder views on extended producer responsibility and the circular economy (see Kunz et al., 2018). The selected six stakeholder groups, all at the forefront in the promotion of the circular economy in Finland, included (1) ministries, (2) federations, (3) research, innovation, and support organisations, (4) regional actors, (5) cities, and (6) businesses. While these key stakeholder groups share a joint interest in supporting a circular economy, each also has its own interests and motivations towards the promotion of a circular economy in Finland (Marjamaa et al., 2021; Salminen et al., 2020).

From each stakeholder group, at least three professionals were interviewed. The interviewees were carefully selected by ensuring that they were involved in the circular economy activities of their employer organisation and therefore, had profound understanding of the circular economy. The interviewees' employer organisations represent different sectors and industries and are actively involved in the promotion of the circular economy at the local, regional, or national level in Finland.

A total of 26 semi-structured interviews were conducted in Finnish between May 2019 and February 2020. Four of the interviews were conducted via Skype, and the others were face-to-face. The total length of the interviews was over 27 hours. The tape-recorded interview data was transcribed verbatim, resulting in a total of 388 pages. Table 13.1 summarises the interview data. The interview questions covered broad

Table 13.1 The interview data

Stakeholder category	Number of interviews	Number of participants	Duration	Number of transcribed pages	Interview codes
Ministry	4	5	variation: 0:52– 1:17, total 4:27	74	M1, M2, M3, M4
Federation	3	3	0:57–1:21, total 3:32	62	F1, F2, F3
Research, innovation, and support organisation	3	3	1:05–1:21, total: 3:67	58	RIS1, RIS2, RIS3
Regional actor	4	5	0:49–1:18, total 4:28	61	RA1, RA2, RA3, RA4
City	4	4	0:54–1:14, total 4:42	43	C1, C2, C3, C4,
Business	8	8	0:31–1:32, total: 7:40	90	B1, B2, B3, B4, B5, B6, B7, B8
Total	26	28	27:35	388	

themes covering the circular economy concept, sustainability, and stakeholder collaboration, as well as the interviewees' own roles in the promotion of a circular economy. The interviews were thematic by nature with open-ended questions (Eriksson & Kovalainen, 2016). Thus, the themes of each interview were identical, but there were variations in terms of individual questions.

Data Analysis

Qualitative content analysis was applied for analysing the data. The analysis started with carefully reading all the interview data. Atlas.ti software was used to assist in the analysis. Interviewee expressions regarding issues under scrutiny were used as the unit of analysis (Tuomi & Sarajärvi, 2018). The process can be described as theory guided, since theoretical pre-understanding guided the analysis (see e.g. Tuomi & Sarajärvi, 2018). Moreover, there was an ongoing “back and forth” process between theoretical discussion and empirical data (see e.g. Eriksson & Kovalainen, 2016). In the analysis, the original expressions were simplified, and

subcategories were formed. The subcategories were further combined into higher order categories (see e.g. Tuomi & Sarajärvi, 2018). The findings were organised into three dimensions: (1) understanding of the circular economy, (2) understanding of sustainability, and (3) understanding of stakeholder engagement. Similarities and differences were looked for regarding the three dimensions, and based on the theoretical pre-understanding (e.g. Landrum, 2018) and the empirical analysis, three approaches to a sustainable circular economy were identified.

Findings

As a result of the study, we present three approaches to a sustainable circular economy: (1) a business-centric circular economy, (2) a systemic circular economy, and (3) a regenerative circular economy (Table 13.2). At the one end of the continuum, the business-centric circular economy approach represents a narrow understanding of the circular economy, sustainability, and stakeholder engagement. At the other end of the continuum, the regenerative circular economy approach represents a broad understanding of the circular economy, sustainability, and stakeholder engagement. Between the narrow and broad approaches, the systemic circular economy approach represents an intermediate understanding of circular economy, sustainability, and stakeholder engagement.

Business-Centric Circular Economy

The business-centric circular economy approach represents a narrow understanding of the circular economy, and the circular economy is discussed mainly in the business context. For example, recycling and waste management aspects of the circular economy are stressed. Also, new business opportunities are associated with wise use of resources, resource efficiency, and the reuse of materials. Similarly, new service-oriented circular economy business models are seen as providing new business opportunities. Whereas, changing business logics and the aim

Table 13.2 Categories of a sustainable circular economy

Dimension	Business-centric circular economy (narrow)	Systemic circular economy (intermediate)	Regenerative circular economy (broad)
Understanding of the circular economy and its connection to sustainability	<p>Circular economy is seen as a business opportunity (e.g. recycling, waste management, recourse efficiency, new business models)</p> <p>Circular economy is loosely connected to sustainability</p>	<p>Circular economy is seen as a systemic change (e.g. an opportunity to increase prosperity and human well-being)</p> <p>Circular economy is closely connected to sustainability</p>	<p>Circular economy is seen as a new economic and societal model (a paradigm shift in the economy and society)</p> <p>Circular economy and sustainability are intertwined</p>
Understanding of sustainability	<p>Focus on only one or two dimensions of sustainability</p> <p>Short-term orientation to economic sustainability</p> <p>Focus on eco-efficiency and mitigation of harmful impacts</p> <p>Economic aspects as a precondition to ecological sustainability</p> <p>Social sustainability remotely connected to circular economy only at the organisational level</p>	<p>All dimensions of sustainability are integrated</p> <p>Long-term orientation to economic sustainability</p> <p>Balanced orientation to ecological sustainability</p> <p>Social sustainability includes societal and global-level orientations</p>	<p>All dimensions of sustainability are aligned to all Earth's systems</p> <p>Economic sustainability is associated with degrowth orientation</p> <p>Embedded orientation to ecological sustainability</p> <p>Holistic orientation towards social sustainability</p>

(continued)

Table 13.2 (continued)

Dimension	Business-centric circular economy (narrow)	Systemic circular economy (intermediate)	Regenerative circular economy (broad)
Understanding of stakeholder engagement	Focus on key stakeholder groups One-way communication	Cross-sector and cross-country collaboration Both shared and conflicting interests Mutual learning	Multi-stakeholder collaboration Innovation platforms and ecosystems

of reducing negative environmental impact are largely discussed without questioning the overall economic status quo. The following quotations illustrate the narrow understanding of the circular economy typical of the business-centric approach:

A circular economy consists of effective utilisation of existing materials and finding ways to constantly enhance the efficiency of circles. (B4)

...we don't talk only about recycling or wise use of resources, instead we talk about core business logic [in the context of a circular economy]. (F3)

At the centre of a circular economy is always some kind of materials and the circulation of materials, and the philosophy of it [i.e. the circulation of materials] defines what a circular economy is. (B7)

While sustainability is often an objective or a driver for circular economy actions, the link between sustainability and the circular economy is rather loose in the business-centric approach. For instance, some of the interviewed professionals discussed unsustainable or superficial circular economy practices. Manufacturing products from waste, which do not provide added value for people, and greenwashing are examples of such activities:

How much there is so-called greenwashing, and how much is talking instead of doing... it depends, but all big, publicly listed companies take this [the circular economy] seriously. (B2)

I feel that there's too much greenwashing...It happens these days that companies greenwash [their businesses]... you need to scratch the surface and look at if it's really sustainable and in line with the circular economy... and even if it is a circular economy company and it's doing the right things from a sustainability perspective, the company may have operational principles which don't stand up to scrutiny... (B7)

Moreover, the circular economy is only loosely linked to the ecological and economic dimensions of sustainability in the business-centric approach, and the social dimension of sustainability is often disregarded.

Trade-offs between different dimensions of sustainability also exist, and contradictory views occur regarding whether ecological sustainability should precede economic sustainability or vice versa. In the interviews, some professionals argued that ecological sustainability should dominate other pillars of sustainability due to planetary boundaries. However, there were also professionals who stressed the importance of economic sustainability:

...ecological sustainability, it's for me always the first [priority], ...it's a fact that we have only one planet. Money can be printed more at any time, and then there is this social sustainability. (M1)

It's a fact, that this world does not spin, even if we produce as environmentally friendly as possible, if the costs get out of hand, then it's not sustainable doing. The basic trinity – economic, ecological, and social sustainability – must be considered. So, there has to be at least economic sustainability along with ecological sustainability. (B4)

When it comes to economic sustainability, the circular economy relates mainly to a short- or medium-term profit-centric orientation. For example, resource efficiency, the reusability of materials and wise use of resources in general are seen as ways to reduce costs, but also to provide new business opportunities for companies. Also, new service-related circular economy business models such as renting clothes, for example, are discussed in the context of economic sustainability. The next quotes illustrate the prioritisation of the short-term orientation in the interviews:

... for our member companies, it [circular economy] is important, because the world is moving forward, and new business opportunities are searched for all the time and there is a shortage of raw materials... (F2)

For me it's hard to imagine a sector, for which this [circular economy] wouldn't be an opportunity. [The wise] use of resources is an opportunity to optimise and reduce costs... of course, there are challenges and some elements in it [circular economy] are costly, but I believe that it will pay

off... in quartal economy... it is hard to make it [circular economy] work, but if you have a longer time perspective...absolutely, it [will work]. (B2)

Although the interviewees acknowledged global challenges such as climate change, ecological carrying capacity, and sufficiency of materials as ecological reasons for circular economy actions, in the business-centric circular economy approach the understanding of ecological sustainability is rather narrow. In other words, ecological sustainability is mainly related to eco-efficiency and the mitigation of harmful environmental impacts. Furthermore, economic aspects, such as the profitability of the new circular economy models, are considered a precondition for ecological sustainability:

Along with economic measures, there has to be a clear impact. Whether it's CO₂ emissions or something else...but it needs to have a positive impact. (B7)

...we need to improve repairing, reutilisation [of materials] and mileage... Those should be tremendously important issues in terms of global production. (B6)

Compared to ecological and economic sustainability, social sustainability receives less attention in the business-centric approach, and social sustainability is rarely mentioned as an outcome or objective of circular economy actions. Thus, only a weak linkage between the circular economy and social sustainability exists, and social sustainability is mainly discussed in an organisational context. For example, the interviewees mentioned safe working environments and the well-being of employees as examples of social sustainability:

We do lots of things... which are remotely related to circular economy, such as [the] well-being of employees, work safety issues and so on. (F2)

The importance of stakeholder engagement in accelerating the transition towards a sustainable circular economy is generally accepted. Yet, in the business-centric approach, stakeholder engagement is understood

narrowly, focusing on only certain stakeholder groups. Moreover, stakeholder engagement is understood as responding to stakeholder demands and as a one-way influence or communication. Moreover, understanding of stakeholder engagement varies among different stakeholder groups. For example, the company representatives stressed the role of customers in circular economy actions and argued that customer demands together with the general attitude of society are fostering the transition towards circular economy business. Whereas, professionals representing federations and regional actors highlighted their own role in sharing information with various stakeholders. The following quotes illustrate one-way communication and the role of customers.

They [customers] have really high demands, many of them have higher than what regulation forces us [to do]... Thus, they [customers] act as a driving force for circular economy actions. (B5)

Our job is to share information... finding the right people around the same table, so that they could find new opportunities. That is mostly our job as a change agent... spreading right information and refuting disinformation. (RA4)

Systemic Circular Economy

In the systemic circular economy approach, the circular economy is understood more broadly than as just a wise use of resources or closing material loops. The circular economy is understood as a systemic change towards a more sustainable way of living. For example, interviewees linked the circular economy to wide regional or national development, which covers various areas such as transportation, construction, infrastructure, and living arrangements. Thus, the circular economy is seen as a tool to maintain and develop prosperity in society, but also to increase human well-being:

It [the circular economy] creates opportunities for Finland – new jobs, sustainable jobs, sustainable services, and material solutions. It [the circular economy] can be, due to our high competence level, a business

advantage, which enables [us] to survive in product development... and replace our current exports based on virgin materials with new sustainable circular economy solutions. (C4)

In the systemic circular economy approach, the ability of the circular economy to promote all dimensions of sustainability is acknowledged. For example, interviewees considered social and cultural sustainability as important outcomes of the circular economy. In addition, acting within planetary boundaries was closely associated with circular economy actions.

I don't personally see that we could promote circular economy, which is not sustainable... but does it [circular economy] consider all aspects of sustainability – that is another question. In other words, is it [circular economy] socially and culturally sustainable? And... we must keep in mind that, if we do not act within the planetary boundaries, there will be no social and cultural sustainability. ...Cultural sustainability can include actions which are distortive from the perspective of nature, so we need to make value-based choices. (RIS1)

In the systemic circular economy approach, the circular economy is not discussed only in the business context; rather, it is also understood as a means to enhance economic prosperity at local, regional, and even national levels in the long run. For example, interviewees linked economic sustainability to the well-being of the local community and to national competitiveness:

To me, circular community makes more sense than circular economy because the community wants to get together, and then it helps the economy grow in a sustainable way. (B8)

If we are here [in Finland] able to develop technologies and practices [in terms of a circular economy]... it's a business opportunity for Finnish people and that way we can increase our exports. (M4)

When it comes to ecological sustainability, the systemic circular economy approach highlights a more balanced orientation compared

to the business-centric approach. For example, interviewees emphasised mitigating harmful environmental effects along with the conservation of resources. Furthermore, ecological sustainability was linked to the overall development of regions such as through the creation of smart city solutions, CO₂-neutral solutions, and the development of urban nature:

...the ultimate reason [for a circular economy] relates to overconsumption and climate change, so a circular economy... it is a way to fight against the overconsumption of natural resources, loss of biodiversity and climate change. (M3)

...we want to find pioneering solutions in terms of energy, smart city, circular economy, city nature, recreation activities and responsibility... All these activities need to support our aim of CO₂ neutrality. (C4)

Regarding social sustainability, both societal and global-level consequences regarding the circular economy are considered in the systemic circular economy approach. At the local and societal level, the circular economy is related to local prosperity and the well-being of citizens. For example, interviewees discussed the creation of new jobs and the promotion of health and well-being as well as sustainable living arrangements as social sustainability issues. This reflects an interest in building a sustainable community. At the global level, social sustainability is related to human rights issues, equal treatment, and the inclusion of all individuals in the transition towards the circular economy.

...at the local level, it [circular economy] is important because it's our local economy. It [circular economy] happens in a certain geographic area... and [it] creates in a way the local well-being [of citizens] and success. (C4)

...[the transition to circular economy] should be kind of democratic and fair, there should be compensation... and of course culture is important. (M1)

I see circular economy more like a way of doing, how we can address the sustainability challenges and act in a responsible manner. Responsibility

includes many other aspects in addition to circular economy, for example equal treatment [of individuals] and geo-political questions. (F3)

In the systemic circular economy approach, stakeholder engagement is related to mutual learning and co-creation among private and public sector stakeholders. Furthermore, stakeholder engagement does not concern collaboration only with stakeholders in Finland; there is an ongoing collaboration with actors from other Nordic and EU countries.

... if we want more competence, we'll find it faster from partners than learning by ourselves... these big companies can [do] so much... They are top in the world, so it's wiser to collaborate with them than trying to copy them... In that way, we have knowhow at our disposal... we are a so-called pioneering city in the UN in terms sustainability goals... so we reflect new solutions with these companies... and then we think always how to be a role model [for other cities in the world]. (C4)

Circular economy is so horizontal and cross-sectional... so, we have quite a lot of international collaboration in terms of climate goals, issues related to biodiversity and sustainable development goals. (M1)

Regenerative Circular Economy

The regenerative circular economy approach represents the broadest orientation towards a sustainable circular economy. In this approach, the circular economy is seen as an entirely new economic and societal model, one which encompasses all levels, sectors, and actors in society. In other words, the circular economy is considered a paradigm shift towards a sustainable economic model. In the interviews, the idea of a regenerative circular economy was discussed mainly in the context of certain industrial fields such as manufacturing and construction. Thus, what a regenerative circular economy could mean, for example, in the social or healthcare sector, was rather unclear. The broad orientation is exemplified as follows:

A circular economy requires an all-encompassing transition in the whole society. Although the basic issue is the circulation of materials, it means also change in the mindset. We cannot always take new resources into use. There are no infinite reserves to deploy. (RIS1)

So, if we think about our regional development strategy, [it includes] industry, smart city and then [the] health and well-being [sector] along with the circular economy... So, it might be that [in the future] we will promote the circular economy in all those sectors... For example, last autumn we pondered what a circular economy can mean in the field of health and social sector. (RA3)

In the regenerative circular economy approach, the circular economy and sustainability are closely intertwined. Furthermore, different sustainability dimensions can be promoted through circular economy actions not only at the business level, but also at the local, national and global levels. In other words, the circular economy is considered an operational model, which makes it possible to act in accordance with the principles of sustainable development, as illustrated in the following:

For me the core [of circular economy] is that we generate as much value as possible in the broadest sense, not only economic value, but value for humans, society and nature as a whole in a way that as little waste as possible is produced... and that we use as little resources as possible. (F3)

It [circular economy] is an operational model, which enables us to achieve goals... such as climate-related goals and biodiversity goals, and we can achieve sustainable development goals. So, it's more like a tool, a way to organise economic activities, but also private consumption, living, and other areas... thereby, it covers the social dimensions, so it's a societal model... (RIS3)

While most of the interviewees discussed economic sustainability only from the perspective of economic growth, one interviewee mentioned decreasing consumption and degrowth as an alternative to current economic thinking.

... I don't believe that there should be always [economic] growth... There should be qualitative changes... I don't agree that we should consume in order to make economic wheels spin. (M1)

In a regenerative circular economy, the importance of ecological sustainability is highlighted. However, only a few of our interviewees had a broad, embedded orientation towards ecological sustainability. In this broad orientation, ecological sustainability was closely intertwined with economic and social sustainability:

For us, resource wise [actions] mean that everything is automatically done in an ecologically sustainable way. In that way we create economic and socially sustainable well-being for our citizens. (C2)

A broad approach to social sustainability was scarcely discussed in the interviews. However, a few interviewees brought up the intergenerational perspective and the well-being of all humans and discussed broad social sustainability at a philosophical level.

...Philosophically, sustainability can be approached [from a long historical perspective]... In 1960, there were 3 billion people on our planet. Last week or two weeks ago, there were approximately 7.45 billion people. In 2100, it's estimated [that there will be] 11.2 billion people. So, it's the population which burdens the climate. [We] need to see responsibility in a way that every person is able to live here on the planet... I see it even as a philosophical [question]... we [companies] [need to] act so that in the future, people can still be here on Earth. (B5)

Despite the mutual interests towards close stakeholder collaboration and engagement in the promotion of the circular economy, the interests of stakeholders can vary and even contradict each other. Diverse interests concerned, for example, the promotion of different sustainability goals. To accelerate the transition towards the circular economy and sustainable development, interviewees stressed the importance of multi-stakeholder collaboration, in other words, collaboration between diverse actors, including different-sized companies, but also between public- and private-sector actors:

One thing which I have noticed is that the collaboration between big and small companies does not function in Finland... So, big companies, they don't open up the market... they don't bring those opportunities to the table, even if they could... and there is also a gap between public and private sector and partially also between the academic world... so they're all too much in their own silos. And that way, every actor has a bit different understanding of the whole phenomenon [circular economy]. (B7)

Examples of broad, multi-stakeholder engagement activities in the regenerative circular economy are co-creation labs, innovation platforms, and ecosystems for stakeholder collaboration. For example, interviewees representing cities highlighted the importance of creating a community, a platform or an ecosystem in which different actors, such as companies and universities, can share knowledge and create new solutions together. Such multi-stakeholder collaboration could enhance the idea of a regenerative circular economy:

...These companies are at the centre... we don't invent [new things] here at the city. It's the universities who create the opportunities to invent and develop. But, the universities can't commercialise [those innovations]. We need companies, who do that. That's why we aim to build this community... an ecosystem... that is what we do. (RA2)

Discussion

This study examines how the connection between the circular economy and sustainability is understood among key stakeholders promoting the circular economy in Finland. Thereby, it answers calls to investigate stakeholder perspectives on the circular economy and to explore the connection between the circular economy and sustainability (Geissdoerfer et al., 2017; Gupta et al., 2019; Pieroni et al., 2019). By empirically investigating stakeholder perceptions of the circular economy and its connection to sustainability, this study sheds light on sustainability dimensions which have been emphasised in recent sustainability

research (Dyllick & Muff, 2016; Landrum, 2018; Mies & Gold, 2021). Our findings demonstrate that key stakeholders acknowledge the importance and urgency of the circular economy for the promotion of sustainability. However, in line with previous studies (Kunz et al., 2018; Winans et al., 2017), the circular economy is considered a complex topic, and variation was found in terms of how broadly the circular economy was understood among the studied stakeholders (cf. Zink & Geyer, 2017).

We offer a contribution to research on the circular economy and sustainability with sustainable circular economy categorisation. Along three dimensions (understandings of the circular economy, sustainability, and stakeholder engagement), our categorisation distinguishes three sustainable circular economy approaches: (1) the business-centric, (2) the systemic, and (3) the regenerative circular economy approach.

The business-centric circular economy represents a narrow approach, where the circular economy is mainly related to recycling and waste management, and it involves only certain sectors and stakeholders in society. This is not surprising, since recycling is considered an easier way to implement circularity than reusing or reducing (Ranta et al., 2018). A business-centric circular economy mainly focuses on the ecological and economic dimensions of sustainability, whereas the link between the circular economy and the social dimension of sustainability is still largely underrepresented (Geissdoerfer et al., 2017; Merli et al., 2018). Moreover, ecological, economic, and social sustainability objectives are not perceived as mutually reinforcing in the business-centric circular economy approach. Instead, competing views exist on whether ecological sustainability goals should precede economic sustainability goals, or vice versa, leading to trade-offs between economic and ecological sustainability (Loiseau et al., 2016). Thus, the business-centric circular economy approach implies a weak sustainability view and gives credence to previous studies demonstrating that in the business context, economic goals are usually considered superior to ecological goals (Centobelli et al., 2020; Landrum, 2018; Ranta et al., 2018). Regarding stakeholder engagement, the business-centric circular economy approach relies mostly on one-way communication and thus, misses possibilities for joint value creation built on interaction, information sharing, and trust (Kujala et al., 2017).

Compared to the business-centric circular economy approach, the systemic circular economy approach adopts a broader perspective by emphasising systemic change and an integrated view on sustainability dimensions. Our empirical findings demonstrate that some of the stakeholders underlined the importance of the circular economy to build longer term ecological, economic, and social sustainability at local and national levels. Furthermore, a more balanced orientation towards different sustainability dimensions is adapted compared to the business-centric circular economy approach. In terms of stakeholder engagement, the systemic circular economy approach stresses mutual learning, collaboration, and co-creation among different stakeholders.

The regenerative circular economy approach illustrates the broadest orientation to the circular economy and its connection to sustainability. In this approach, ecological sustainability relates to an embedded understanding of environmental prosperity, whereas social sustainability is associated with international and intergenerational aspects of human well-being (Murphy, 2012). Interestingly, our findings demonstrate that although current understandings of climate challenges and planetary boundaries are acknowledged, the urgency of an alternative economic model and the importance of degrowth or decreasing consumption is rarely discussed. Similarly, a broad embedded approach to ecological and social sustainability was scarcely discussed in the interviews. Some interviewees stressed the importance of strong, multi-stakeholder collaboration and a long-term orientation to the circular economy, but concrete examples of these kinds of actions were scarce. To sum up, in our findings, the business-centric and systemic circular economy approaches prevailed, while the regenerative circular economy approach was less prominent.

The presented categorisation links the regenerative circular economy approach with strong sustainability (Landrum, 2018). While some researchers see the circular economy as a means to promote strong sustainability (Loiseau et al., 2016), our findings indicate that in practice, circular economy understandings and practices align mostly with the weak and intermediate sustainability understandings represented by the business-centric and systemic circular economy approaches, thus supporting previous circular economy research (Geissdoerfer et al., 2017;

Merli et al., 2018; Pieroni et al., 2019; Reike et al., 2018; Velen-turf & Purnell, 2021). Thus, it can be pondered whether the regenerative circular economy approach is merely an ideal approach or is something that can be achieved through circular economy actions and stakeholder engagement.

Practical Implications

Based on the findings, we argue that there is a need for a dialogue among stakeholders regarding the connection between the circular economy and sustainability. To solve global-, national-, and regional-level sustainability challenges, it is important to pay attention to different sustainability dimensions in the circular economy context. Instead of seeking trade-offs between various sustainability dimensions, there is a need to find mutual benefits in the circular economy transition in the long run. As short-term economic priorities may complicate the delivery of the ecological and social outcomes of the circular economy, a broad understanding of sustainability among key stakeholders is needed to foster the transition towards a sustainable circular economy. The categorisation presented in this study can assist practitioners in understanding how the circular economy and sustainability are connected and the importance of stakeholder engagement in the promotion of a sustainable circular economy. The categorisation can also provide guidelines for practitioners to further sustainability through circular economy actions. Finally, the regenerative circular economy approach challenges current understandings and highlights that much needs to be done if we wish to achieve a regenerative circular economy.

Limitations and Directions for Future Research

There are some limitations that should be addressed. First, all the interviewed professionals were involved in the promotion of the circular economy in Finland. Thus, their perceptions may be biased, as they have advanced insight into the circular economy and the promotion of sustainable development relative to that of other actors. Future studies

could examine how private and public sector organisations, which are not yet involved with the circular economy, perceive the connection between the circular economy and sustainability. Second, some stakeholders, including customers, nongovernmental organisations (NGOs), education organisations, and media, were excluded from the study. Thus, future studies should investigate how these stakeholders perceive the connection between the circular economy and sustainability, as NGOs, for instance, are needed in discussions regarding transitioning towards a sustainable circular economy, and changes in consumer consumption patterns are required in the transition. Third, this study investigated the circular economy and sustainability perceptions among multiple stakeholder groups. In the future, a narrower focus could be taken. For example, the connection between the circular economy and sustainability could be investigated in a specific industrial sector or at a particular level of society to uncover context-specific issues regarding the sustainable circular economy. Finally, this study was restricted to the Finnish setting. The connection between the circular economy and sustainability should be explored in other cultural contexts as well.

Conclusions

This study examines stakeholder perceptions of the circular economy and its connection to sustainability. Building on the circular economy and sustainability literature and on empirical findings from interviews with key stakeholder groups, we identified three sustainable circular economy approaches: (1) the business-centric, (2) the systemic, and (3) the regenerative circular economy approach. Along three dimensions, our study showed that the business-centric approach represents a narrow understanding of the circular economy, sustainability, and stakeholder engagement, while the systemic circular economy approach represents an intermediate understanding of these dimensions. The regenerative circular economy approach represents the broadest understanding but was less evident in our findings. This study calls more attention towards the connections between the circular economy, sustainability,

and stakeholder engagement to accelerate the transition towards ecological, economic, and social sustainability.

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